

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN**

U.S. WATER SERVICES, INC., and ROY
JOHNSON,

Plaintiffs,

v.

NOVOZYMES A/S and NOVOZYMES NORTH
AMERICA, INC.,

Defendants.

Case No. 3:13-cv-00864-jdp

**NOVOZYMES' RULE 50(a) MOTION FOR JUDGMENT OF
NO WILLFUL INFRINGEMENT AND LIMITED DAMAGES
AS A MATTER OF LAW**

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I. INTRODUCTION

Pursuant to Rule 50(a), defendants Novozymes A/S and Novozymes North America, Inc. (collectively, “Novozymes”) move for judgment as a matter of law of no willful infringement and to limit damages.

II. NOVOZYMES IS ENTITLED TO JUDGMENT OF NO WILLFUL INFRINGEMENT AND LIMITED DAMAGES AS A MATTER OF LAW

The Court should enter judgment as a matter of law that Novozymes did not willfully infringe U.S. Water’s patents by contributing to and inducing its customers’ direct infringement, and that damages should not exceed a reasonable royalty rate of 7 percent. U.S. Water offered insufficient evidence on two issues. First, no evidence in the record supports U.S. Water’s contention that Novozymes’ conduct was wanton, malicious, or in bad faith, nor rebuts evidence of Novozymes’ subjective good faith belief of non-infringement and invalidity. And second, no evidence in the record supports U.S. Water’s assertion that a “reasonable royalty” in this case amounts to more than 100 percent of Novozymes’ revenue from Phytaflow®.

A. Legal Standard

Federal Rule of Civil Procedure 50(a)(1) provides:

If a party has been fully heard on an issue during a jury trial and the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue, the court may: (A) resolve the issue against the party; and (B) grant a motion for judgment as a matter of law against the party on a claim or defense that, under the controlling law, can be maintained or defeated only with a favorable finding on that issue.

The Seventh Circuit has explained that the question under Rule 50(a)(1) “is simply whether the evidence as a whole, when combined with all reasonable inferences permissibly drawn from that evidence, is sufficient to allow a reasonable jury to find in favor of the [nonmoving party].” *Hall v. Forest River, Inc.*, 536 F.3d 615, 619 (7th Cir. 2008). A “mere scintilla” of evidence is not sufficient to survive a Rule 50 motion; there must be “substantial evidence” that “would have

permitted the jury to find in the [nonmoving party]’s favor.” *Mut. Serv. Cas. Ins. Co. v. Elizabeth State Bank*, 265 F.3d 601, 612 (7th Cir. 2001).

B. No Reasonable Jury Could Find Willful Infringement by Novozymes

The patentee bears the burden of establishing willful infringement by a preponderance of the evidence. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1933 (2016). In *Halo*, the Supreme Court recognized that “there is ‘no precise rule or formula’” for determining willfulness, but made clear that willfulness is reserved for “egregious cases of misconduct [that go] beyond typical infringement” and requires conduct that is “wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate.” *Id.* at 1932, 1935. A court’s inquiry focuses on “the subjective willfulness of a patent infringer . . . without regard to whether his infringement was objectively reckless,” and must take “into account the particular circumstances of each case” and all relevant factors in determining whether to award enhanced damages. *Id.* at 1933–34. Based on the evidence in the record, no reasonable jury could find that Novozymes’ conduct was so “egregious” as to be “characteristic of a pirate.”

1. Novozymes’ Evidence of its Subjective and Good Faith Belief in Non-Infringement and Invalidity Negates a Finding of Willful Infringement

Post-*Halo*, the objective reasonableness of Novozymes’ non-infringement and invalidity defenses remains pertinent to assessing its subjective intent. *WesternGeco L.L.C. v. ION Geophysical Corp.*, 837 F.3d 1358, 1363 (Fed. Cir. 2016) (“After *Halo*, the objective reasonableness of the accused infringer’s positions can still be relevant for the district court to consider when exercising its discretion.”). In particular, evidence that a defendant consulted with patent attorneys and obtained opinions of counsel is “highly probative . . . of good faith.” *Loggerhead Tools, LLC v. Sears Holding Corp.*, No. 12-CV-9033, 2016 WL 6778881, at *2 (N.D. Ill. Nov. 15, 2016) (internal quotations and citations omitted). The focus of the willful

infringement analysis is on the time of the challenged conduct, which is particularly important here as Novozymes’ defenses were developed *before* litigation and were known at the time of the challenged conduct, which is “the temporal focus of the willfulness inquiry.”¹ See *Greatbatch Ltd. v. AVX Corp.*, No. 13-723-LPS, 2016 U.S. Dist. LEXIS 171939, at *11 (D. Del. Dec. 13, 2016); *Halo*, 136 S. Ct. at 1933 (“[C]ulpability is generally measured against the knowledge of the actor at the time of the challenged conduct.”). Multiple Novozymes witnesses testified that Novozymes carefully analyzed U.S. Water’s patent rights, and has consistently maintained a reasonable invalidity and non-infringement position.

The objective reasonableness of Novozymes’ invalidity position is evidenced by the Court’s summary judgment order ruling that the asserted patents were invalid as anticipated by the prior art. Dkt. No. 561. For this reason alone, no reasonable jury could find that Novozymes was subjectively willful. Furthermore, as described below, Novozymes introduced evidence that it reasonably relied both on an internal freedom-to-operate analysis as well as on the opinions of its outside counsel, all of which concluded that the ’137 and ’399 patent claims were invalid (and therefore also not infringed).

a. Novozymes Relied in Good Faith on an Internal Freedom-to-Operate Analysis

Jack Rogers, Head of Global Marketing Operations at Novozymes, testified that Novozymes conducts a freedom-to-operate (“FTO”) analysis before launching any new product, and that it followed that policy for Phytaflow[®]. Trial Tr. (Oct. 19, 2017 pm) at 96:18–97:2, 97:3–14. Mr. Rogers explained that even before any of U.S. Water’s patents issued,

¹ Although it is undisputed that Novozymes knew of the issued ’137 patent and the then-pending ’399 patent before the lawsuit was filed, its “pre-suit knowledge of a patent is not sufficient, by itself, to support ‘willful misconduct.’” *Greatbatch*, 2016 U.S. Dist. LEXIS 171939, at *6; see also *Halo*, 136 S. Ct. at 1936 (Breyer, J., concurring).

Novozymes' in-house patent attorneys evaluated U.S. Water's pending patent applications, and prepared a formal memorandum of that analysis dated February 17, 2011, prior to the first plant trial of NZ 50161 (later re-named Phytaflow®). *Id.* at 98:23–99:8; DTX 2834.

In particular, the FTO analysis considers the scope of U.S. Water's anticipated claims in its then-pending patent application, which matured into U.S. Patent No. 8,039,244 ("the '244 patent"), focusing on their limitation to phytase addition "after fermentation." DTX 2834.001, .006–.007; Trial Tr. (Oct. 19, 2017 pm) (rough) at 101:10–19. Mr. Rogers testified that the FTO analysis also discusses the prior art, including Novozymes' own patent application NZ10010—an internal designation for WO 2001/62947 ("Veit")—directed to the use of phytase during fermentation in a fuel ethanol plant. Trial Tr. (Oct. 19, 2017 pm) (rough) at 102:6–103:6; DTX 2834.003. The FTO states that U.S. Water has pending patent applications "on addition of phytase after fermentation into the whole stillage and backset" and that prosecution is ongoing. DTX 2834.001. The FTO analysis concludes that "the use of phytase during the fermentation step does not infringe [U.S. Water's] patent family as this is disclosed in our NZ10010 application published at the priority date of the U.S. Water Services patent application." DTX 2834.008. It recommends, however, that Novozymes should not promote the use of phytase after fermentation given U.S. Water's pending claims. Trial Tr. (Oct. 19, 2017 pm) (rough) at 101:10–19; DTX 2834.001.

Mr. Rogers testified that he received and reviewed the FTO, and discussed it with the business team and the in-house patent attorneys. Trial Tr. (Oct. 19, 2017 pm) (rough) at 99:16–23. Mr. Rogers understood the initial FTO as a "green light to promote the phytase for the use in fermentation," but that Novozymes "could not promote phytase or use it after the fermentation step." *Id.* at 102:3–5.

Mr. Rogers also testified that Novozymes continued to circulate updates to its FTO analysis, all of which reflected these same considerations and beliefs as to the scope of the issued and anticipated claims. The first such update occurred in April 2013, following allowance by the Patent Office of U.S. Water's '137 patent. *Id.* at 104:14–105:8; DTX 2848.002. These updates reiterated the conclusion that Novozymes and its customers could not infringe the '244 patent claims given their limitation to phytase addition after fermentation, and concluded further that the '137 patent claims were invalid over Veit as well as additional Genencor prior art. DTX 2848.002; Trial Tr. (Oct. 19, 2017 pm) (rough) at 106:7–107:1; *see also* DTX 2821; Trial Tr. (Oct. 19, 2017 pm) (rough) at 108:14–109:1. Mr. Rogers testified that these updates were considered and relied upon by the business team in maintaining Phytaflow[®] in the market. Trial Tr. (Oct. 19, 2017 pm) (rough) at 108:5–10.

b. Novozymes Also Relied in Good Faith on Opinions of Outside Counsel

In addition to preparing and relying on its in-house FTO and updates thereto, Novozymes also introduced evidence that it sought the opinion of outside counsel. Specifically, Novozymes asked Dr. Michael Shuster, a registered patent attorney and intellectual property partner at Fenwick & West LLP, to prepare formal opinions as to any risk posed by U.S. Water's patents. In preparing these opinion letters, Dr. Shuster reviewed the patents and prosecution history, construed the claims, and compared the claims to what was disclosed in the Veit reference.² *Id.* at 143:10–144:9. Dr. Shuster and his colleague together spent approximately 135 hours preparing the opinion letter for the '244 and '137 patents, DTX 2244, and an additional 38 hours

² Dr. Shuster testified that he did not search for additional prior art because “Veit was an excellent . . . prior art reference that was dispositive on the issue of the validity of those claims that we analyzed.” Trial Tr. (Oct. 19, 2017 pm) (rough) at 149:3–9.

preparing the opinion letter for the '399 patent, DTX 2245. *Id.* at 144:12–19; *id.* at 146:22–147:1. His conclusions were entirely independent.

Dr. Shuster's July 16, 2013 opinion letter concluded that Novozymes (1) "does not infringe, nor does it induce its customers to infringe, any valid claim of the '244 patent or claims 9–11 of the '137 patent" and (2) that "all of the claims of the '137 patent are anticipated by and/or obvious over WO 2001/62947 [Veit] in view of WO 2007/003940 and U.S. Patent No. 5,756,714."³ DTX 2244.002; (Trial Tr. Oct. 19, 2017 pm) (rough) at 148:9–22. Dr. Shuster testified that he concluded that Veit anticipates the asserted claims of the '137 patent because in addition to teaching all the process limitations and addition of phytase to fermentation, "it also included information showing that under conditions that are in one of its examples that the result of that addition reduced to undetectable levels a level of phytin or phytate in those mixtures." Trial Tr. (Oct. 19, 2017 pm) (rough) at 149:10–18; DTX 2244. With respect to inherent disclosure of reduced formation of phytate deposits, Dr. Shuster explained that "because it was phytate that was producing the deposits, the absence of phytate, its disappearance by the enzyme would reduce the formation, it had to reduce the formation of the deposits." Trial Tr. (Oct. 19, 2017 pm) (rough) at 150:6–9; DTX 2244.058 ("the method described in WO 2001/62947 necessarily reduces the formation of deposits of insoluble phytic acid or phytic acid salts in ethanol processing equipment because it significantly decreases the amount of phytic acid and phytic acid salts, which cause the deposits").

For the same reasons, Dr. Shuster's March 6, 2014 opinion letter similarly concluded that the claims of the '399 patent were invalid over Veit. Trial Tr. (Oct. 19, 2017 pm) at 152:2–6;

³ Dr. Shuster testified that although they had a strong argument for anticipation, he also opined that the '137 patent claims were obvious because to the extent a limitation was absent from Veit, a person of ordinary skill in the art would conclude that the differences between what was taught in Veit and what was in the claims were insubstantial. *Id.* at 150:10–11, 150:16–22.

DTX 2245.001. The letter also concluded based on Novozymes' instructions in the Phytaflow[®] application sheet (DTX 2240) that Novozymes neither induces nor contributes to any customer infringement. Trial Tr. (Oct. 19, 2017 pm) at 152:12–25; DTX 2245.001.

Dr. Shuster's testimony makes clear that the two opinion letters he provided to Novozymes were thorough, and that his conclusions were the result of independent analysis and reflected the applicable law and prior art. U.S. Water did not offer any evidence that Dr. Shuster's opinions were not competent or were not the result of a thorough and reasonable investigation.

Mr. Rogers testified that he carefully reviewed the opinion letters, which were consistent with the opinions expressed in the FTO, and found them thorough, easy to understand, and well-reasoned. Trial Tr. (Oct. 19, 2017 pm) (rough) at 111:12–112:22, 114:2–10, 114:16–18. Mr. Rogers discussed the opinions with others at the company, including in-house patent attorney Michael Krenicky, as well as his manager and the field management team. *Id.* at 112:23–113:7, 114:11–15. In reliance on the opinion letters and surrounding discussions, Novozymes decided to continue selling Phytaflow[®] for use in fermentation. *Id.* at 112:18–22, 114:24–115:1.

In sum, Novozymes reasonably believed it had the right to proceed with selling Phytaflow[®] in fermentation, and reasonably relied on the internal FTO and opinions of counsel regarding the scope of U.S. Water's patent rights.

c. Novozymes Received No Response from U.S. Water When It Communicated Its Belief that Veit Placed Phytase Addition to Fermentation in the Public Domain

Not only did Novozymes have a sincere belief, supported by both in-house and independent legal analyses, in the invalidity of U.S. Water's patents, but it also communicated those beliefs *to U.S. Water and never heard back*. Specifically, U.S. Water's outside counsel sent a letter to Novozymes President Adam Monroe on May 30, 2012 asserting that U.S. Water

had patent rights—at that time limited to the '244 patent—covering “reducing scale deposits in fuel ethanol processing” and accusing Novozymes of both promoting its phytase as a substitute product for U.S. Water’s product and making “false statements” about the '244 patent. Trial Tr. (Oct. 19, 2017 pm) (rough) at 126:24–127:16; DTX 2281. Novozymes’ Deputy General Counsel of the Americas, Charles Shapiro, testified that after consulting with the Novozymes attorneys who had performed the FTO analysis, he responded to the letter on June 11, 2012 by denying these various allegations, and explaining that Novozymes was offering a product only for use in fermentation, as described in Veit. Trial Tr. (Oct. 19, 2017 pm) (rough) at 127:8–128:6, 128:16–129:10; DTX 2283. Mr. Shapiro further testified that U.S. Water never responded to his letter. Trial Tr. (Oct. 19, 2017 pm) (rough) at 129:11–12. Rather, the next communication the company received from U.S. Water was eighteen months later when U.S. Water filed this lawsuit against Novozymes. *Id.* at 129:19–24. In the face of U.S. Water’s failure to respond, Novozymes had no reason to question its sincerely held belief that Phytasflow[®] use in fermentation did not and could not infringe any valid U.S. Water patent right.

d. Novozymes’ Indemnification of Multiple Customers Further Supports Novozymes’ Good-Faith Conduct

Additional evidence of Novozymes’ sincere belief that it did not and could not infringe any valid U.S. Water patent is demonstrated by Novozymes’ offer to indemnify six different customers who use Phytasflow[®] in accordance with Novozymes’ instructions for use. *Id.* at 123:1–124:22 (discussing five letters admitted into evidence and a sixth letter that Mr. Shapiro drafted); PTX 210; PTX 364; PTX368; PTX 369; DTX 2277. As Mr. Shapiro testified, Novozymes rarely offers to indemnify its customers because there is a “very high commercial exposure to Novozymes” when providing indemnification to a customer. Trial Tr. (Oct. 19, 2017 pm) (rough) at 124:3–15. Therefore, in order for Novozymes to consider indemnifying a

customer, each such offer must separately be approved by employees and executives at multiple levels of the company, and disagreements as to indemnification are raised directly with the CEO. *Id.* at 124:16–125:24. Here, Novozymes went through this rigorous vetting process six different times, which is persuasive evidence of Novozymes’ strong belief as to the scope of U.S. Water’s patent rights. *See Greatbatch*, 2016 U.S. Dist. LEXIS 171939, at *10 (finding defendant’s offer to indemnify a third party “could be viewed as evidence that [defendant] did *not* believe it was infringing a valid patent” (emphasis in original)).

2. U.S. Water Has Not Introduced Sufficient Evidence to Support a Finding of Willfulness

Against these facts, U.S. Water adduces no evidence of any egregious conduct by Novozymes that could support a finding of willfulness under *Halo*. As an initial matter, U.S. Water appears to rely almost entirely on e-mail communications of Novozymes employees. This evidence suffers from two flaws.

First, virtually all of these documents concern Novozymes’ conduct *before* the asserted patents issued. Such evidence is insufficient to establish willful infringement given that culpability is determined “at the time of the challenged conduct,” *i.e.*, after the patents issued in April and December 2013. *Halo*, 136 S. Ct. at 1933.

Second, U.S. Water cannot establish culpable behavior by Novozymes based on the conduct of its individual employees. A court’s willfulness inquiry must focus on corporate behavior, as damages for willfulness are “generally [] reserved for egregious cases typified by willful misconduct.” *Halo*, 136 S. Ct. at 1934. Correspondence from a handful of individual employees can hardly support a finding that Novozymes *as a company* was subjectively willful, particularly where multiple corporate executives testified as to the company’s reasonable and good-faith beliefs regarding the scope of U.S. Water’s claims. *See id.* (explaining that courts

should take into account the particular circumstances of each case in deciding whether to award enhanced damages).

There is also no evidence that Novozymes copied U.S. Water's patent claims. Jeffrey Faller, a Novozymes Director of Key Accounts, testified that Phytaflow is an off-the shelf rebranding of Novozymes' Ronozyme P-(L)[®] product, sold since 2006 for use in animal feed. Trial Tr. (Oct. 13, 2017 am) (rough) at 106:11–107:4; *see also* Dkt. No. 804, Rogers Dep. Tr. at 70:25–71:15. Furthermore, Peter Halling, Vice President of Biofuels at Novozymes, testified that the selection of a suitable phytase for effecting phytate degradation in ethanol fermentation had its roots in work dating back to 2000, several years before U.S. Water even filed its patent application. Trial Tr. (Oct. 13, 2017 am) (rough) at 81:25–82:6, 82:15–25; *see also id.* at 142:23–143:2 (Rogers). The evidence adduced at trial and described above shows that Novozymes carefully analyzed the patent landscape before entering the market for its Phytaflow[®] product, and reasonably relied on multiple opinions regarding the scope of U.S. Water's patent rights. Indeed, Novozymes adopted a deliberate course to *not* copy, but instead to proceed with a method of using phytase that had been documented in Novozymes' own prior art.

Where, as here, there is no evidence of copying or other wanton behavior, and the evidence demonstrates that the defendant reasonably relied on opinions of non-infringement and invalidity, there can be no willfulness. Post-*Halo* cases also support that no reasonable jury could find willful infringement on the facts here. *See, e.g., Wis. Alumni Research Found. v. Apple, Inc.*, No. 14-CV-062-WMC, 2017 WL 2438832, at *11 (W.D. Wis. June 6, 2017) (finding there was “no evidence of copying or other egregious misconduct that would warrant a finding of willful infringement,” and noting further that “assuming the court can consider post-litigation conduct . . . [defendant] developed and pursued an invalidity defense, which the court found to

be objectively reasonable, albeit ultimately unsuccessful”); *Greatbatch*, 2016 U.S. Dist. LEXIS 171939, at *11 (no reasonably jury could find willfulness where the plaintiff cited no evidence of “copying” or “plundering,” “[the defendant]’s reasonable pre-litigation defenses” based on opinions of counsel “[were] pertinent to assessing [its] subjective intent,” and “the record showed that [the defendant] ‘made significant efforts to avoid infringement’”); *Move, Inc. v. Real Estate All. Ltd.*, 221 F. Supp. 3d 1149, 1173 (C.D. Cal. 2016) (summary judgment of no willful infringement where the plaintiff produced “no evidence that [the defendant] engaged in any ‘misconduct beyond typical infringement’”; at most, defendant continued to use the allegedly infringing method after it learned of the patents, but it had “several reasonable arguments as to why its conduct was non-infringing”); *Loggerhead Tools, LLC v. Sears Holding Corp.*, No. 12-CV-9033, 2016 WL 6778881, at *2 (N.D. Ill. Nov. 15, 2016) (denying plaintiff’s motion for summary judgment on willfulness, finding no facts showed wanton conduct, where defendant took efforts to avoid infringing the patents at issue, consulted with a patent attorney, which was “highly probative evidence of good faith,” and obtained a noninfringement opinion); *Dorman Prods. v. PACCAR, Inc.*, 201 F. Supp. 3d 663, 680–81 (E.D. Pa. 2016) (denying plaintiff’s motion for summary judgment of willful infringement, finding defendant’s actions fell “far short of conduct ‘characteristic of a pirate’”); *Radware, Ltd. v. F5 Networks, Inc.*, No. 5:13-cv-02024-RMW, 2016 U.S. Dist. LEXIS 112504, at *9–16 (N.D. Cal. Aug. 22, 2016) (granting defendant’s motion for judgment as a matter of law of no willfulness because the trial record contained “insufficient evidence to support the jury’s willfulness finding”).

In light of Novozymes’ presentation of its reasonable invalidity and non-infringement defenses and U.S. Water’s failure to identify any post-issuance, pre-litigation conduct by

Novozymes in support of its willful infringement claim, no reasonable jury could find that Novozymes willfully infringed.

C. Damages Should Be Limited to a Reasonable Royalty Not to Exceed Seven Percent of Net Revenue of Phytaflow®

U.S. Water bears the burden of proving damages. Yet the testimony of its expert, Richard Bero, falls short of providing a reliable foundation on which the jury can assess any damages in this case. After making a number of faulty assumptions and oversights, Mr. Bero ultimately testified that in a hypothetical, arms-length negotiation, the reasonable royalty rate on which U.S. Water and Novozymes would have agreed is \$8.00 per pound of Novozymes' Phytaflow®.⁴ This amounts to an award of nearly \$12 million, which is more than Novozymes' *total sales* of Phytaflow® during the damages period and represents an effective royalty rate of 127 percent of revenue. In contrast, Novozymes' damages expert, Julie Davis, applied the appropriate legal framework and concluded from U.S. Water's own evidence that a royalty rate of 7 percent of revenue of the accused Phytaflow® products is appropriate.

No reasonable jury could find that U.S. Water is entitled to more than 100 percent of Novozymes' revenue as Mr. Bero suggested at trial. And because Mr. Bero's testimony suffered from numerous foundational flaws, that testimony cannot support a jury award in the amount U.S. Water seeks. Accordingly, Novozymes respectfully requests judgment as a matter of law that U.S. Water has not demonstrated its entitlement to damages that exceed the 7 percent reasonable royalty rate.

⁴ Prior to product launch, Phytaflow® was known as Novozym® 50161. This brief refers to both as "Phytaflow®."

1. Mr. Bero's Testimony Is Unreliable and Cannot Support the Unreasonable Royalty on Which He Opines

No reasonable jury could find that U.S. Water carried its burden of establishing damages through the opinions of Mr. Bero.

a. Mr. Bero's "Reasonable Royalty" Is Really an Unsupported Claim for Lost Profits

At a high level, Mr. Bero's testimony regarding a "reasonable royalty" is unreliable because it is merely a lost profits demand in disguise. In reaching his reasonable royalty range, Mr. Bero adopted a "starting point royalty rate range" that is defined on the low end by the *entire amount* of Novozymes' profits on sales of Phytaflow[®], and at the high end by the *entire amount* of U.S. Water's profits on sales of pHytOUT[®]. Trial Tr. (Oct. 19, 2017 pm) (rough) at 28:16–21, 50:1–8, 50:11–16. He did this based on an assertion that in a hypothetical negotiation, U.S. Water would have expected to lose profits from pHytOUT[®], and therefore would have demanded a royalty higher than Novozymes' prospective revenue to account for those lost profits. *Id.* at 7:10–12. In other words, Mr. Bero first attributes the *entire value* of U.S. Water's pHytOUT[®] product offering to the patented methods, and then assumes that U.S. Water would have made *all* of the sales Novozymes made of Phytaflow[®], and finally assumes that Novozymes would have had profits on those sales. *See id.* at 52:10–14, 79:7–14, 80:1–4. Mr. Bero takes this "lost profits" number, casts it as an expectation of U.S. Water, and defines it as a "starting point" for the hypothetical negotiation. *Id.* at 37:21–38:6.

A patentee's compensatory damages for infringement typically are measured by one of two methods: lost profits or reasonable royalty. *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1330 (Fed. Cir. 2015). Lost profits is a measure of a competitor's "sales and profits lost to the patentee because of the infringement." *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1545 (Fed. Cir. 1995). Conversely, a reasonable royalty is a measure of what the patentee "would

have received through arms-length bargaining” for a license. *AstraZeneca*, 782 F.3d at 1330 (citing *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009)).

A reasonable royalty, which is what Mr. Bero claims to provide, is calculated based on a hypothetical negotiation for a license to the patented invention between the patentee and the infringer at the time of first infringement. See *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 868 (Fed. Cir. 2010). The hypothetical negotiation “attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.” *Lucent*, 580 F.3d at 1324. To recover lost profits based on lost sales, on the other hand, a patentee must show not what the parties would have agreed to, but instead must show the harm it suffered was caused by the infringer’s sales—*i.e.*, that *but for* the infringement, the patentee would have made the infringer’s sales. *Rite-Hite*, 56 F.3d at 1545; *see also Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978) (reciting four-factor test for lost profits); *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999) (“To recover lost profits, the patent owner must show ‘causation in fact,’ establishing that ‘but for’ the infringement, he would have made additional profits.”). Lost profits typically are more difficult to prove than reasonable royalty damages. See *Siemens Med. Sols. USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1290 (Fed. Cir. 2011).

Mr. Bero confirmed at trial that his opinions relate to a reasonable royalty analysis, *not* a lost profits analysis. Trial Tr. (Oct. 19, 2017 pm) (rough) at 49:10–21. By framing his opinion as a “reasonable royalty” analysis, Mr. Bero presumptively avoided having to meet the rigorous economic and legal standards for lost profits. For example, had Mr. Bero attempted to demonstrate that U.S. Water lost profits based on Novozymes’ sales of Phytaflow[®], he would have first had to show that demand for the patented method, as opposed to other considerations,

drives demand for Phytaflow[®] and pHytOUT[®]. *See Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1264 (Fed. Cir. 2013) (the required “but for” causation is established by “the four-factor *Panduit* test”). He also would have had to provide a sound economic analysis of the market, including the likelihood that U.S. Water could have continued to sell pHytOUT[®] at its higher prices (thus enjoying the same profit) to Novozymes’ customers who had been paying significantly less per pound for Phytaflow[®]. *See id.*

Mr. Bero did not do this kind of lost profits analysis. He did no analysis of the various factors that could drive demand for pHytOUT[®] and Phytaflow[®], although there were many such factors to consider. *See infra* § II.C.1.b. He admitted that he instead assumed that the entire value of each product was attributable to the patented methods. Trial Tr. (Oct. 19, 2017 pm) (rough) at 27:17–22, 51:3–4, 52:10–14. He admitted that he performed no analysis of non-infringing alternatives on the market. *Id.* at 75:4–14. He admitted that he did not account for price sensitivity or price elasticity, instead assuming that price was perfectly inelastic. *Id.* at 71:23–24. And he admitted that he could not show that *but for* a sale of Phytaflow[®] by Novozymes, U.S. Water would have sold that same amount of pHytOUT[®] at its higher price. *See id.* at 59:8–16, 79:7–14, 79:18–80:4.

And yet, Mr. Bero relied for his reasonable royalty calculation on U.S. Water’s *expectation* that it would have lost pHytOUT[®] sales. In other words, Mr. Bero simply *assumed* as an “expectation of the parties” what a lost profits analysis would have required him to *prove*.⁵

⁵ This is not the first occasion on which Mr. Bero has attempted to use the reasonable royalty framework to capture lost profits for a patent infringement plaintiff, without doing a real lost profits analysis. In *Sloan Valve Co. v. Zurn Indus., Inc.*, the Court rejected Mr. Bero’s virtually identical analysis in which, “[d]espite acknowledging that lost profits were not available” during the damages period, Mr. Bero “still attempts to include lost profits by incorporating them in his reasonable royalty calculation.” 33 F. Supp. 3d 984, 1001 (N.D. Ill. 2014) (finding testimony by Mr. Bero was unreliable and inadmissible). Here, too, Mr. Bero’s approach impermissibly

This is no more than an attempt at an end run around the kind of rigorous lost profits analysis required by law. Mr. Bero's decision to forego that analysis has resulted in his methodology being unreliable as a matter of law. Therefore, U.S. Water failed to provide the jury with reliable evidence sufficient to establish the amount of damages it requests.

b. Mr. Bero Failed to Apportion the Selling Price of pHyTOUT[®] and Phytaflow[®] to Account for the Contributions of the Patented Method as Distinct from Other Contributions of Value

Mr. Bero's analysis is also unreliable as a matter of law because he misapplied the "income approach" and failed to perform any apportionment.

First, Mr. Bero incorrectly applied the "income approach." The accepted applications of the "income approach" focus on the profits that use of the patented technology created for the *infringer*, not the patentee. *See Sentius Int'l, LLC. v. Microsoft Corp.*, No. 5:13-cv-00825-PSG, 2015 WL 451950, at *9 (N.D. Cal. Jan. 27, 2015) (finding Sentius' expert's "income approach damages theory [was] sufficient to get to the jury" where he used "Microsoft's [(the accused *infringer's*)] revenue and profit to determine Microsoft's at-risk profit per copy and then analyz[ed] how the parties would divide this at-risk profit based on their relative bargaining positions"); *Ultratec, Inc. v. Sorenson Commc'ns, Inc.*, No. 13-cv-346-BBC, 2014 WL 5080411, at *4 (W.D. Wis. Oct. 9, 2014) (collecting cases regarding "the analytical or income approach," and noting that "in those cases, the experts compared the *infringer's* profits without infringement to the *infringer's* profits with infringement" (emphasis added)). Yet instead of following these applications, Mr. Bero testified that he used nearly the full amount of *U.S. Water's* (the patentee's) profits on pHyTOUT[®] (the covered product) to define the high end of the range of a per pound rate U.S. Water would expect to make for every infringing sale of Phytaflow[®] by

incorporates the full value of U.S. Water's purported "lost profits" based on the number of allegedly infringing pounds of Phytaflow[®] sold by Novozymes.

Novozymes. Trial Tr. (Oct. 19, 2017 pm) (rough) at 50:1–8. Likewise, instead of comparing pHytOUT[®] profits to the profits of other products that differ only with respect to the patented invention, Mr. Bero compared pHytOUT[®] products to the average profits of all products offered by U.S. Water’s EPT group, regardless of how those products otherwise compare to pHytOUT[®]. *Id.* at 84:15–85:9. His unsupported methodology resulted in a grossly overstated range of “value” attributable to patented methods, as it is untethered in any meaningful way to the contribution of the invention, if any, to those products.

Second, Mr. Bero’s testimony shows that he failed to apportion the profits he used to define the “starting point royalty range” between the patented methods and other aspects of value. Mr. Bero assumed that the number of pounds Novozymes sold of Phytaflow[®] should be the royalty base. *Id.* at 26:16–25. Mr. Bero conceded during trial that the norm is to use revenue as a base, and a percentage of revenue as the rate. *Id.* at 27:6–7. But setting aside whether pounds (as opposed to revenue) is an appropriate base, Mr. Bero still needed to apportion value when calculating the royalty rate for the patented methods. *See AstraZeneca*, 782 F.3d at 1338 (explaining that *Georgia-Pacific* factors 9, 10, and 13 require that the royalty rate reflect only the portion of the product’s value that was added by the invention); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2012). This is because the evidence at trial showed that at best, only a portion the parties’ profits on pHytOUT[®] and Phytaflow[®] are attributable to the invention.

For example, for a number of years, U.S. Water required fuel ethanol plants to sign a written supply agreement to obtain pHytOUT[®]. *E.g.*, DTX 2475. The supply agreements specified that a customer would pay a price, *e.g.*, \$14.93, per pound of pHytOUT[®]. *See* DTX 2475.006. But a customer paying \$14.93 per pound for pHytOUT[®] got a lot more than simply

the right to use the patented methods. Specifically, that price includes “payments for ***Chemical, Invention***, and ***USWS Services***.”⁶ DTX 2475.006 (emphasis added). Only the “Invention” component of this price relates to the patented method, and it also covers U.S. Water’s trade secrets. DTX 2475.003. The evidence showed that U.S. Water continued to supply these benefits in exchange for the per pound price paid by its customers even in the absence of these supply agreements. Trial Tr. (Oct. 19, 2017 am) (rough) at 44:1–12, 70:16–71:8 (U.S. Water’s CEO, Allan Bly, testifying regarding services that U.S. Water provides to its pHytOUT[®] customers).

Against all of this evidence and contrary to black letter law, Mr. Bero did not apportion. He admitted that his royalty base includes non-patented items, such as the raw materials, U.S. Water’s trade secrets, and services provided to customers. Trial Tr. (Oct. 19, 2017 pm) (rough) at 52:23–25, 54:10–55:1. However, he simply assumed, for purposes of his analysis, that these non-patented aspects have little or no value. *Id.* at 55:2–23. When pressed regarding apportionment, he conceded that “I didn’t go out and specifically try to apportion to every little piece of the pie. But I apportioned to the patented technology.” *Id.* at 56:25–57:3. Ultimately, when asked again to identify his apportionment, Mr. Bero said that he apportioned by creating a range between Novozymes’ and U.S. Water’s respective profits, and then he “ended up at [\$]8

⁶ “Invention” was defined as including the not-yet-issued ’137 patent and ’399 patent, as well as other patent rights, and “Know-How,” which was, in turn, defined as including “trade secrets” and “chemical formulations, test procedures and other information owned or controlled by” U.S. Water. DTX 2475.003. “Chemical” was defined as the (unpatented) pHytOUT product itself, *id.*, and “USWS Services” were itemized in an appendix to the agreement, and included “pHytOUT[®] technology training,” “review of alternative pHytOUT[®] chemistries,” “regular inventory reconciliation,” “chemical storage methods,” “fermentation data analyses,” “process unit operational review & recommendations,” and “semi-annual business reviews.” *Id.* at 12. *See also* PTX 599, 611 (additional U.S. Water supply agreements).

and that’s the amount apportioned to the patented technology.” *Id.* at 57:17–22. This is insufficient.

The Federal Circuit has explained that agreements covering more than just the patent at issue may be relied on in valuing the patented invention under certain circumstances. *See Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1227–28 (Fed. Cir. 2014). However, it has also made clear that “[s]uch evidence is relevant and reliable . . . *where the damages testimony regarding those licenses takes into account the very types of apportionment principles contemplated in Garretson.* In short, [such evidence is admissible] where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology” *Id.* at 1228 (citing *Garretson v. Clark*, 111 U.S. 120 (1884) (emphasis added)). Here, the problem is not that Novozymes disagrees with the amount Mr. Bero apportioned to the patented methods, but rather that he *failed to do any apportionment whatsoever*. Given the explicit guidance from the Federal Circuit on this point, Mr. Bero’s testimony that fails to apportion value to the patented invention is unreliable and cannot support the amount of damages U.S. Water requests.

c. The Royalty Rate Applied by Mr. Bero Is Grossly Excessive

This is not a lost profits case. Therefore, Mr. Bero’s testimony must establish “the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.” *Lucent*, 580 F.3d at 1324.

On its face, Mr. Bero’s opinion regarding the hypothetical negotiation fails this basic principle. He acknowledged that Novozymes earns approximately \$5 per pound in incremental profit on the accused Phytaflow[®] product. Trial Tr. (Oct. 19, 2017 pm) (rough) at 50:11–16. For purposes of his analysis, he proceeded to assume that at the low end, Novozymes would *start* the hypothetical negotiation from the perspective that it would disgorge at least all of its profits for a

license to the patented methods. *Id.* at 50:17–21. This, notwithstanding Mr. Bero’s concessions that it would be atypical for a licensee to agree to a royalty greater than the average selling price of its product. *Id.* at 48:24–49:4, 49:8–9 (“Typically you wouldn’t expect a licensee to want to pay that amount of money certainly.”).

Mr. Bero’s royalty rate was grossly excessive for at least two reasons. First, his assumption that a *minimum* royalty would require Novozymes to disgorge all of its profits on Phytaflow[®] sales is contrary to law. Disgorgement is not an appropriate remedy for patent infringement. *Robert Bosch, LLC v. Pylon Mfg. Corp.*, 719 F.3d 1305, 1315–16 (Fed. Cir. 2013) (observing that “Congress eliminated recovery of an adjudged infringer’s profits” as a remedy for patent infringement in 1946, and explaining that “in a modern damages trial,” it is appropriate to determine “a patentee’s damages including lost profits or a reasonable royalty, but not . . . an adjudged infringer’s profits” (citation omitted)).

Second, courts have recognized that it is generally *not* reasonable to conclude that a hypothetical negotiation would result in a royalty rate that leaves the accused infringer with no profit at all. *See Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 895 F.2d 1403, 1408 (Fed. Cir. 1990) (“[Patentee’s damage expert] Enlow’s opinion that AmHoist ‘would agree to pay a royalty in excess of what it expected to make in profit’ was, in light of all the evidence in this case, absurd.”); *Hughes Tool Co. v. Dresser Indus., Inc.*, 816 F.2d 1549, 1558 (Fed. Cir. 1987) (reversing a reasonable royalty award of 25 percent as arbitrary, in part because resulted in a rate that did not leave the infringer with “a reasonable profit”); *see also Mobil Oil Corp. v. Amoco Chems. Corp.*, 915 F. Supp. 1333, 1365–66 (D. Del. 1994) (finding a patentee’s damages theory “unsound” where it sought a royalty in excess of the defendant’s entire profit during the damages period, as such an analysis “does not pass the reality test”). In cases finding

otherwise, the facts showed that the infringer, at the time of the hypothetical negotiation, expected significantly greater profits than he actually received. *See Rite-Hite*, 56 F.3d at 1577 (Nies, Archer, Smith, & Mayer, JJ., dissenting-in-part) (“Although this court has sanctioned royalty awards that exceeded the infringer’s actual net profits, we have done so only when there was evidence that the infringer actually anticipated greater net profits.” (collecting cases)).

No facts support Mr. Bero’s conclusion here. The critical issue is that Mr. Bero used Novozymes’ net profit margin as the *minimum* possible royalty rate, and adjusted upward from there. This analysis is at odds with the very purpose of the hypothetical negotiation, which is to measure what the patentee “would have received through arms-length bargaining” for a license. *AstraZeneca*, 782 F.3d at 1330 (citing *Lucent*, 580 F.3d at 1324). This is also inconsistent with Mr. Bero’s testimony, in which he conceded that it would be uncommon for a licensee to agree to very same royalty he proposes to be “reasonable.” Trial Tr. (Oct. 19, 2017 pm) (rough) at 48:24–49:9. As Mr. Bero’s proposed royalty is grossly excessive and facially unsound, it cannot support a jury award in the amount that U.S. Water seeks at trial.

d. Mr. Bero Failed to Account for Price Elasticity and Improperly Attempted to Capture Price Erosion

As explained above, Mr. Bero assumed that U.S. Water would have made all of Novozymes’ sales of Phytaflow[®] at U.S. Water’s selling price, even though U.S. Water’s selling price was more than twice Novozymes’. *Id.* at 47:24–48:1, 79:7–14, 80:1–4. But Mr. Bero admitted at trial that he failed to do a price sensitivity or price elasticity analysis. *Id.* at 71:23–24. He also failed to perform the requisite analysis to cover for alleged price erosion. Given the evidence in this case, these failures render his key assumption unreliable. *See Crystal Semiconductor Corp. v. TriTech Microelectronic Int’l, Inc.*, 246 F.3d 1336, 1357 (Fed. Cir.

2001) (“[I]n a credible economic analysis, the patentee cannot show entitlement to a higher price divorced from the effect of that higher price on demand for the product.”).

When a patentee asserts it would have charged a higher price, and demands damages to make up for that difference in price, the expert must provide economically sound evidence of the impact that price increase would have on the number of sales it would have expected to make. *See id.* at 1359–60 (requiring evidence sufficient “to show the reaction of the market if, ‘but for’ infringement, [the patentee] would have tried to charge at least 89¢ more” and “evidence of how a hypothetical increase in price would have affected [patentee’s] profits due to lost sales”; holding that “[t]o show causation with reliable evidence, a patentee must produce credible economic evidence to show the decrease in sales, if any, that would have occurred at the higher hypothetical price”); *TV Interactive Data Corp. v. Sony Corp.*, 929 F. Supp. 2d 1006, 1027 (N.D. Cal. 2013) (interpreting *Crystal Semiconductor* to “require[] a price elasticity analysis when a patent holder seeks to collect damages on a price erosion theory”). A credible analysis must at least explain why the market is inelastic, which the Federal Circuit has cautioned is “very rare.” *Crystal Semiconductor*, 246 F.3d at 1359; *accord Ericsson v. Harris*, 352 F.3d 1369, 1378 (Fed. Cir. 2003). An example of the rare instance where an inelastic market may occur is where “substitution of a product [is] impossible and the product [is] a necessity.” *Crystal Semiconductor*, 246 F.3d at 1359.

Mr. Bero failed to perform any price elasticity analysis. This is true notwithstanding his testimony that *there is uncertainty associated with the price customers would be willing to pay in excess of what they were paying for Phytaflow®*. Trial Tr. (Oct. 19, 2017 pm) (rough) at 71:14–15, 71:18–20, 71:23–24, 80:7–12. Specifically, he conceded that if Novozymes were to raise its prices to support the royalty U.S. Water seeks, “[p]erhaps some of those sales would have

otherwise diminished We don't know that for sure.” *Id.* at 81:21–82:2. He also testified that he did not have, and did not consider, any evidence showing that Novozymes’ customers would have been willing to pay the higher prices that U.S. Water demands. *Id.* at 82:3–7.

Mr. Bero’s testimony also shows that this is not one of those “rare” inelastic markets where the accused product is a necessity and cannot be substituted for another. *See Crystal Semiconductor*, 246 F.3d at 1359. For example, he conceded that some of U.S. Water’s customers were lost to DuPont’s phytase-containing products. Trial Tr. (Oct. 19, 2017 pm) (rough) at 59:8–16; *see also id.* at 59:6–7 (acknowledging that there are not only two competitors in the market). The evidence also shows that some plants do not use any phytase products at all. Trial Tr. (Oct. 17, 2017 am) (rough) at 144:1–10 (U.S. Water’s technical expert, Mr. Flanagan, admitting that sulfuric acid and cleaning in place still remain options to reduce fouling). This is consistent with the testimony of Mr. Bly and U.S. Water’s expert, Mr. Dorn, who both testified that the fuel ethanol market is highly price-sensitive. Trial Tr. (Oct. 11, 2017 pm) (rough) at 73:6–10 (Mr. Dorn characterizing the market as “very competitive” and stating that customers are “constantly trying to . . . reduce costs”); Trial Tr. (Oct. 19, 2017 am) (rough) at 71:9–10 (Mr. Bly testifying that customers are sensitive to price). Mr. Bero’s concessions are also consistent with the testimony of other witnesses, who confirmed that there are alternatives to using Phytaflow to reduce deposits. Trial Tr. (Oct. 16, 2017 pm) (rough) at 31:9–15 (testimony of Dr. Kohl); Dkt. No. 804, Rogers Dep. Tr. at 91:9–16 (describing the use of other enzymes or sulfuric acid, adjusted cleaning cycles, and mechanical solutions). Mr. Bero’s bare assertion that *all* of Novozymes’ customers would be willing to pay a dramatically higher price for a phytase product cannot be squared with the evidence, particularly since he performed no analysis to support that assertion. Trial Tr. (Oct. 19, 2017 pm) (rough) at 82:3–7.

Mr. Bero's testimony regarding price erosion was similarly unreliable. To the extent a patentee attempts to capture the "price erosion" allegedly suffered from competition before the asserted patents issued, that analysis requires (1) a showing "that 'but for' infringement, [the patentee] would have sold its product at a higher price"; (2) "evidence of the (presumably reduced) amount of product the patentee would have sold at the higher price"; and (3) a theory that "account[s] for the nature, or definition, of the market, similarities between any benchmark market and the market in which price erosion is alleged, and the effect of the hypothetically increased price on the likely number of sales at that price in the market." *Ericsson*, 352 F.3d at 1378 (quoting *BIC Leisure Prods., Inc. v. Windsurfing Int'l, Inc.*, 1 F.3d 1214, 1220 (Fed. Cir. 1993) and *Crystal Semiconductor*, 246 F.3d at 1357). Mr. Bero did not perform any of this required analysis. And in fact, Mr. Bero testified that U.S. Water had reduced its pHytOUT[®] prices prior to issuance of the patents-in-suit, and prior to the hypothetical negotiation. Trial Tr. (Oct. 19, 2017 pm) (rough) at 79:18–22. He conceded that U.S. Water is not entitled to compensation from Novozymes as a result of these price changes, but also testified that his report does not account for this discrepancy. *Id.* at 78:24–79:6.

To justify the kinds of assumptions Mr. Bero has made, even for a reasonable royalty analysis, U.S. Water needed to present evidence of the effect of its higher price on the demand for the product. *Id.* (explaining that "in a credible economic analysis, the patentee cannot show entitlement to a higher price divorced from the effect of that higher price on demand for the product"). There is no such evidence in the record. As the assumptions on which Mr. Bero premised his royalty analysis are not reasonable and are not supported by any credible economic analysis, the Court should find that U.S. Water has failed to carry its burden of proving damages.

e. Mr. Bero's Analysis and Conclusions Regarding the Avantec Products Are Unreliable

Mr. Bero testified that he had considered sales of Avantec, a non-phytase product sold by Novozymes, in forming his opinion regarding a reasonable royalty. If anything, the evidence at trial supports the opposite of Mr. Bero's conclusions.

Avantec is an alpha-amylase product used in liquefaction that is intended to improve ethanol yields. Dkt. No. 805, Schnurrer Dep. Tr. at 136:4–5; Dkt. No. 804, Rogers Dep. Tr. at 37:20–24, 38:1–4. Mr. Rogers testified that it is Novozymes' "main goal [] to make the Avantec sell." *Id.* at 56:20–21. Therefore, when a customer purchases Avantec, Novozymes encourages the customers to use a phytase product such as Phytaflow[®]. *Id.* at 58:10–17, 59:5–8. Mr. Schnurrer also testified that if a plant trialing Avantec saw increased fouling, Novozymes might then encourage the customer to continue using phytase. Dkt. No. 805, Schnurrer Dep. Tr. at 136:18–137:1. Mr. Rogers testified that currently, Novozymes has seven plants purchasing Avantec, only two of which purchase Phytaflow[®]. Trial Tr. (Oct. 19, 2017 pm) (rough) at 117:1–10. In other words, a sale of Avantec may generate a sale of Phytaflow[®], particularly if the customer prefers to purchase its enzymes from a single source. Dkt. No. 804, Rogers Dep. Tr. at 57:2–57:3.

Mr. Bero reviewed the Avantec evidence and testified that Avantec is a "significant product with significant profits and significant sales." Trial Tr. (Oct. 19, 2017 pm) (rough) at 28:11–12. He opined that "there's a relationship in some fashion between [Phytaflow[®] and Avantec]," and specifically testified that \$91 million in Avantec sales also involved Phytaflow[®] customers. *Id.* at 42:14–20, 75:17–21. Based on the "relation" between these products, Mr. Bero then opined that under *Georgia-Pacific* factors 6 and 11, sales of Avantec support his

upward adjustment of the royalty rate. *Id.* at 40:18–41:10, 42:15–20. *Georgia-Pacific* factors 6 and 11 read as follows:

6. The *effect of selling the patented specialty in promoting sales of other products* of the licensee; that existing value of the invention to the licensor *as a generator of sales of his non-patented items*; and the extent of such derivative or conveyed sales.

11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.

Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)

(emphases added).

These factors support the exact opposite of what Mr. Bero concluded. As Mr. Rogers testified, Novozymes has a “main goal” to sell Avantec and sales of Phytasflow® are secondary. Dkt. No. 804, Rogers Dep. Tr. at 56:20–21. And Mr. Schnurrer’s testimony shows that an Avantec customer might be driven to purchase a phytase to help control fouling as a result of the lower pH at which Avantec is used. Dkt. No. 805, Schnurrer Dep. Tr. at 136:18–137:1, 138:13–20. Based on this evidence, to the extent the sale of one product drives the sale of another in this case, it is the sale of the non-patented Avantec product that generates sales of phytase products generally, not the other way around.

Although Mr. Bero identified Avantec as a “significant” Novozymes product, he was unable to do more than that. His identification of “a relationship in some fashion” between Avantec and Phytasflow® falls far short of establishing that sales of Avantec are relevant to damages, and he ultimately conceded that he has no way of knowing which product a customer purchases first. Trial Tr. (Oct. 19, 2017 pm) (rough) at 77:14–21; *see also id.* at 76:23–77:4 (conceding that some Avantec plants use pHytOUT®); *id.* at 77:24–25 (“I can’t say specifically that Phytasflow caused Avantec sales, no.”); *id.* at 78:4–8 (“But it certainly could be the case that Avantec was promoting sales of Phytasflow, sure.”).

Not only does a reliable damages analysis require more than Mr. Bero's speculation, but the *Georgia-Pacific* factors require the opposite of what is shown by the evidence: the *patented product* must promote or generate the sales of *non-patented products*. As no evidence supports Mr. Bero's upward adjustment of the royalty based on Avantec sales, these products are irrelevant and his analysis is unreliable.

In sum, based on the foundational flaws in Mr. Bero's testimony, U.S. Water has failed to carry its burden of establishing damages in the amount it requests.

2. U.S. Water Has Not Shown that It Is Entitled to Damages that Exceed the Seven Percent Reasonable Royalty Rate

As U.S. Water failed to provide reliable evidence on which the jury could base a damages award, the Court should limit damages to the 7 percent reasonable royalty rate derived from U.S. Water's supply agreements and supported by the opinions of Novozymes' damages expert, Julie Davis. Unlike Mr. Bero, Ms. Davis applied the proper legal framework and arrived at a reasonable royalty adequate to compensate U.S. Water for the infringement.

First, Ms. Davis provides an apportionment analysis of the same supply agreements on which Mr. Bero relies: specifically, a supply agreement where Kansas Ethanol agrees to purchase pHytOUT[®] from U.S. Water at a price of \$14.93 per pound. DTX 2475; DTX 2475.006. However, Ms. Davis' analysis diverges markedly from Mr. Bero's, as she apportions that price so that it reflects the value attributable to the "Chemical" (pHytOUT[®]), the "Invention" (rights to 3 patents and U.S. Water's trade secrets), and "USWS Services." *See* DTX 2475.006. First, based on the testimony of Allan Bly, U.S. Water's CEO and Rule 30(b)(6) witness, Ms. Davis concluded that for one pound of pHytOUT[®], the selling price attributable to U.S. Water's services is \$5.23 per pound. Also based on Mr. Bly's testimony, Ms. Davis determined that the selling price of the actual phytase product, pHytOUT[®], is \$6.47. This leaves \$3.23 of the selling

price attributable to “Invention”—both patents and trade secrets, which Ms. Davis determined to be of equal value. And finally, Ms. Davis apportioned among three patents, only two of which are asserted here, to determine that in one pound of pHytOUT[®], the value attributable to the asserted patents is \$1.08. This is 7 percent of the total selling price of pHytOUT[®] (\$14.93).⁷

There is nothing noteworthy about Ms. Davis’ apportionment analysis except for the very fact that she performed one. Mr. Bero, on the other hand, did not. As apportionment is not an optional exercise, *see AstraZeneca*, 782 F.3d at 1338, Mr. Bero’s failure to apportion renders his proposed royalty untethered to the value of the patented method.

Second, Ms. Davis’ opinion differs from Mr. Bero’s in that she applies a royalty rate based on a percentage of revenue of Phytaflow[®] sales, unlike Mr. Bero’s price-per-pound structure. However, Ms. Davis’ royalty structure is based on her analysis of licenses in the fuel ethanol industry, which confirm that this structure is the norm. That same analysis revealed that Ms. Davis’ royalty rate of 7 percent falls squarely within a typical range of licenses relating to enzymes. Moreover, although Mr. Bero used a price-per-pound royalty, he testified that “more typically you would use a selling price of the infringing products,” as Ms. Davis has here. Trial Tr. (Oct. 19, 2017 pm) (rough) at 27:6–7.

And finally, Ms. Davis assessed the limited nature of the improvement covered by U.S. Water’s patents. U.S. Water did not invent phytases. Nor did U.S. Water invent the use of phytases in fermentation or in the wet milling process, as those processes were already in the public domain. The evidence showed that the improvements of the asserted patents were at most incremental, as the Court found before trial that 6 of the 7 claim limitations were expressly disclosed by the prior art. The only limitation not expressly taught in the prior art is the narrow

⁷ Ms. Davis also considered a number of other licenses in the area of enzymes and fuel ethanol processing products in forming her opinion regarding a reasonable royalty.

result of phytase acting on a phytate deposit—“reduction of deposits.” Thus, Ms. Davis appropriately concluded that the limited nature of these improvements does not justify departing from the pricing methodology reflected in U.S. Water’s supply agreements.

III. CONCLUSION

For the foregoing reasons, Novozymes respectfully requests that this Court grant its motion for judgment of no willful infringement as a matter of law, and that damages should not exceed a reasonable royalty of 7 percent of Novozymes’ Phytaflow[®] sales.

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Respectfully submitted,

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